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**Amendment to the Claims:**

1.　(Currently Amended)　~~Image~~ An image processing system for generating a multidimensional adaptive oriented filter to be applied to [[the]] point intensities of an image formed in a number d of dimensions, comprising:

~~analyzing means comprising means (5, fi) to~~ one or more processors programmed to:

estimate at each image point a probability measure (Fi) of [[the]] a presence of a type of image feature of interest which can be an elongated anisotropic feature or a generally circular or spherical isotropic feature; [[and]]

[[to]] determine from said probability measure a weighting control model [[(10)]] yielding a weighting control vector [[(11, VC)]] for [[the]] a user to control synthesized adaptive kernels at each image point; and

~~synthesizing means for generating~~ generate adaptive filter kernels at each image point adapted to the type of the image feature[[s]] of interest, which adaptive filter kernels are controlled by the weighting control vector.

2.　(Currently Amended)　The image processing system of Claim 1, wherein the ~~synthesizing means comprises means for generating~~ one or more processor(s) is further programmed to:

~~filtering means called "pre-mixing filtering means" comprising combining means (30, XH) dependent on the type of the image features having inputs for the weighting control vector (11, VC) and the image data [I(x)] and having an output for~~ generate weighted adaptive filter kernels [[(35, H)]] adapted to the type of the image features of interest based on the weighting control vector and image data (I(x)) to produce [[the]] a filtered image signal ~~[H(x)]~~ (H(x)).

3. (Currently Amended) The image processing system of Claim 1, wherein the ~~synthesizing means comprises means for generating~~ one or more processor(s) is further programmed to:

~~filtering means called "post-mixing filtering means" comprising~~ apply both isotropic and anisotropic ~~filtering means [15, gi)] applied~~ filters (gi) independently of the type of the image features of interest;[[,]] ~~whose~~

combine outputs (Gi) ~~are combined~~ of the applied isotropic and anisotropic filters at each image point; and

~~adapted using~~ use the weighting control vector [[(11, VC)]] to produce [[the]] a filtered image signal ~~[G(x)]~~ (G(x)).

4. (Currently Amended) The image processing system of Claim 1, wherein the ~~synthesizing means comprises means for generating~~ one or more processor(s) is further programmed to:

~~the analyzing means comprises~~ apply a number m of operators (f1,..,fi,..,fm), ~~which outputs~~ at each current point of the image [[the]] to output probability measure (F1,..,Fi,..,Fm) of a presence of the image features of interest among [[the]] m types of different image features ~~in the image~~ to be filtered.

5. (Currently Amended) The image processing system of ~~Claim 1~~ Claim 4, wherein the ~~analyzing means comprises~~ one or more processor(s) is further programmed to:

apply a combining operator ~~(10, Xu), called user operator,~~ which receives at its input the probability measures (F1,..,Fi,..,Fm) of the presence of the different types of the image features for forming [[the]] a weighting control model[[,]] ~~which~~ and provides at its outputs ~~the control vector (VC) of~~ k components (C1,..,Ci,..,Ck) of the weighting control vector, for controlling the adaptive filter kernels ~~of the synthesized filters~~.

6. (Previously Presented) The image processing system of Claim 1, wherein the features of interest are chosen among anisotropic features and isotropic features.

7. (Currently Amended) The image processing system of Claim 6, wherein the ~~synthesizing means comprises, in the "pre-mixing filtering means",~~ one or more processor(s) is further programmed to:

apply a combining operator [[(30, XH),]] which receives at its input, the weighting control vector [[VC]] and [[the]] image data I(x) and which provides at its output an adaptive kernel [[(H)]] that is adapted to [[the]] an orientation of the anisotropic oriented features and/or to [[the]] dimensions of the isotropic features to be filtered or enhanced by the weighting parameters defined by the weighting control vector [[(VC)]] in a pre-mixing filtering operation.

8. (Currently Amended) The image processing system of Claim 6, wherein the ~~synthesizing means comprises, in the "pre-mixing filtering means",~~ one or more processor(s) is further programmed to:

apply a number m of different ~~filtering means~~ post-mixing filters (g1,..,gi,..,gm), which are applied independently of the types of the image features examined in the image, whose number m corresponds to the number m of image features of different types to be processed; and

~~whose~~ mix outputs (G1,..,Gi,..,Gm) ~~are mixed in~~ of the post-mixing filters with a combination operator [[(XG),]] which is controlled by the weighting control vector [[(VC)]] to produce [[the]] a filtered image signal ~~[G(x)]~~ (G(x)).

9. (Currently Amended) The image processing system of Claim 8, wherein the combination operator [[(XG)]] is a weighted sum of [[the]] results of applying the different ~~filtering means~~ post-mixing filters (g1,..,gi,..,gm).

10. (Currently Amended) The image processing system of ~~Claim 2~~ Claim 8, ~~wherein~~ further including:

a user control interface ~~(158) is provided for the~~ by which a user ~~to control the~~ controls weighting parameters (C1,..,Ci,..,Ck) of the weighting control vector, selects pre-mixing filters ~~(VC); for selecting the "pre-mixing filtering means"~~ and/or the ~~"post-mixing filtering means"; for varying the~~ post-mixing filters, a

strength of filtering or enhancement related to the ~~different~~ types of image features of interest (a) at the output of the combination operator ~~(XG) while combining~~ which combines the ~~results~~ outputs (G1,..,Gi,..,Gm) to produce the filtered image signal ~~[G(x)] in the "post-mixing filtering means";~~ (G(x)) and/or (b) at the input of [[the]] a combination operator [[(XH)]] in ~~the "pre-mixing filtering means"~~ a pre-mixing filter.

11.     (Currently Amended)   ~~Image~~ An image processing method for generating a multidimensional adaptive oriented filter to be applied to point intensities of an image formed in a number (d) of dimensions, the method comprising:

estimating at each image point a probability measure [[(Fi)]] of [[the]] a presence of a type of feature of interest which can be an elongated anisotropic feature or a generally circular or spherical isotropic feature;

determining from said probability measure a weighting control model yielding a weighting control vector [[(VC)]] for a user to control synthesized adaptive kernels at each image point; [[and]]

generating filter kernels at each image point adapted to the type of the features of interest, which filter kernels are controlled by the weighting control vector; and

displaying processed images on a display device.

12.     (Currently Amended)   ~~Medical~~ A medical examination apparatus comprising:

means to acquire d-dimensional image data [I(x)];

an image processing system for generating a multidimensional adaptive oriented filter to be applied to point intensities of an image formed in a number d of dimensions, comprising:

analyzing means comprising means to estimate at each image point a probability measure of a presence of a type of feature of interest which can be an elongated anisotropic feature or a generally circular or spherical isotropic feature and to determine from said probability measure a weighting control model yielding a weighting

control vector for a user to control synthesized adaptive kernels at each image point; and

synthesizing means for generating filter kernels at each image point adapted to the type of the feature of interest, which filter kernels are controlled by the weighting control vector;

[[,]] a system as Claimed in Claim 1 and further comprising a display system [[(154)]] for visualizing processed images; and

user control means [[(158)]] for selecting weighting parameters and/ or acting on [[the]] a user operator [[(10)]] and/or [[the]] a selection unit [[(40)]].

13.     (Currently Amended)     A     computer     program     product comprising a set of instructions for carrying out [[the]] a method as claimed in Claim 11 of image processing for generating a multidimensional adaptive oriented filter to be applied to point intensities of an image formed in a number of dimensions, the method comprising:

estimating at each image point a probability measure of a presence of a type of feature of interest which can be an elongated anisotropic feature or a generally circular or spherical isotropic feature;

determining from said probability measure a sweighting control model yielding a weighting control vector for a user to control synthesized adaptive kernels at each image point; and

generating filter kernels at each image point adapted to the type of the features of interest, which filter kernels are controlled by the weighting control vector.

14.     (New)     The image processing system as claimed in claim 1, further including:

a user control device by which a user selects weighting parameters.

15.     (New)     The image processing system as claimed in claim 14 further including a medical imaging apparatus which acquires three-dimensional image data.

16.    (New)    The image processing system as claimed in claim 14, further including:

a display system which visualizes processed images.


17.    (New)    The method as claimed in claim 11, wherein the estimating, determining and generating steps are performed by one or more processors.